

# Stuttgarter Beiträge zur Naturkunde

## Serie A (Biologie)

Herausgeber:

Staatliches Museum für Naturkunde, Rosenstein 1, D-7000 Stuttgart 1

Stuttgarter Beitr. Naturk.	Ser. A	Nr. 484	13 S.	Stuttgart, 15. 9. 1992
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### Tripterygiid Fishes of the Maldives Islands, with Descriptions of Two New Species (Teleostei: Blennioidei)

By Ronald Fricke, Stuttgart and John E. Randall, Honolulu

With 1 plate and 8 figures

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#### Summary

The Tripterygiidae of the Maldives are revised. Five species are recognized: *Enneapterygius elegans* (Peters, 1877), a western Indian Ocean species; *E. obscurus* Clark, 1980, previously known only from the Red Sea; *Helcogramma fuscopinna* Holleman, 1982, an Indo-West Pacific species; *Helcogramma larvata* n. sp., characterized by 20–22 lateral line scales, the orbital tentacle lacking, 2–3 + 1 + 2–3 mandibular pores, and a dark lower side of the head in males; *Helcogramma maldivensis* n. sp., characterized by its color pattern of two stripes consisting of pale blue spots and lines, 12–14 (usually 13) second dorsal rays, 9–11 (usually 10) third dorsal rays, 13–21 lateral line scales, and a mandibular pore formula of 3 + 2 + 3. All species represent new records for the Maldives; the two new species are presently endemic to the island group. A key to the Tripterygiidae of the Maldives is provided.

#### Zusammenfassung

Die Dreiflossigen Schleimfische (Tripterygiidae) der Malediven werden revidiert. Die folgenden Arten werden im Bereich der Malediven gefunden: *Enneapterygius elegans* (Peters, 1877), sonst im westlichen Indischen Ozean verbreitet; *E. obscurus* Clark, 1980, sonst nur aus dem Roten Meer bekannt; *Helcogramma fuscopinna* Holleman, 1982, indo-westpazifisch verbreitet. *Helcogramma larvata* n. sp. ist durch 20–22 porige Seitenlinienschuppen, den fehlenden Orbitaltentakel, 2–3 + 1 + 2–3 Mandibularporen und die dunkle Unterseite des Kopfes beim Männchen charakterisiert; *H. maldivensis* n. sp., die am häufigsten bei den Malediven vorkommende Tripterygiidenart, wird von der nah verwandten Art *Helcogramma striata* Hansen, 1986 durch das Farbmuster der Körperseiten (mit 2 Reihen blaßblauer Flecke), die 12–14 (meist 13) Stachelstrahlen der zweiten Rückenflosse, die 9–11 (meist 10) Strahlen der dritten Rückenflosse, die 13–21 porigen Seitenlinienschuppen und die Mandibularformel 3 + 2 + 3 unterschieden. Alle erwähnten Arten werden zum ersten Mal von den Malediven beschrieben; die beiden neuen Arten sind für die Malediven endemisch.

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## 1. Introduction

The blennioid family Tripterygiidae, popularly known as triplefins, is a group of small benthic fishes distributed widely in temperate and tropical seas. Most species are associated with coral reefs. The two largest genera, *Enneapterygius* Rüppell and *Helcogramma* McCulloch & Waite occur circumtropically, but most species are found in the Indo-West Pacific. *Enneapterygius* is in great need of revision. Although *Helcogramma* was revised by HANSEN (1986), further study of this genus is advised.

CLARK (1980) revised the species of Tripterygiidae in the Red Sea. HOLLEMAN (1982, 1986) reported on the species from the western Indian Ocean. WINTER-BOTTOM et alii (1989) listed three species from the Chagos Archipelago: *Enneapterygius abeli* (Klausewitz), *Enneapterygius* sp., and *Helcogramma fuscopinna* Holleman (identifications of *E. abeli* and *H. fuscopinna* checked by the first author). The only tripterygiid recorded from the nearby Maldives Islands was one identified as *Helcogramma striata* by HANSEN (1986); her two Maldives specimens, which were collected at Villingili Islet, North Male Atoll by the junior author in 1975, were among the material she listed in her description of *H. striata*. However, they and other specimens recently collected in the Maldives represent a new species related to *H. striata* which we describe herein.

The authors and associates have collected a total of five species of tripterygiid fishes in the Maldives which form the basis for the present report. Three are species of *Helcogramma*, two of which are described as new, and two are species of *Enneapterygius*.

## 2. Methods and Material

**Methods:** Methods follow HOLLEMAN (1982) and HANSEN (1986), except for the system of counting caudal fin rays; for this, FRICKE (1983) is used. Proportions are given as thousandths of standard length (SL). In the descriptions of new species, data for paratypes are given in parentheses.

**Material:** The Maldives tripterygiid material is deposited in the collections of the following institutions:

<i>BM (NH)</i>	British Museum (Natural History), London;
<i>BPM</i>	Bernice P. Bishop Museum, Honolulu;
<i>CAS</i>	California Academy of Sciences, San Francisco;
<i>MNHN</i>	Muséum National d'Histoire Naturelle, Paris;
<i>NSMT</i>	National Science Museum, Tokyo;
<i>RUST</i>	J. L. B. Smith Institute of Ichthyology, Rhodes University, Grahamstown, South Africa;
<i>SMNS</i>	Staatliches Museum für Naturkunde, Stuttgart;
<i>USNM</i>	National Museum of Natural History, Washington D. C.;
<i>ZMB</i>	Zoologisches Museum, Museum für Naturkunde, Berlin.

### 3. Key to the Tripterygiidae of the Maldives Islands

- 1 Lateral line continuous, consisting of 13 – 27 pored scales . . . . . 2
- Lateral line discontinuous, consisting of an anterior series of 10 – 19 pored scales and a posterior series of 14 – 20 notched scales . . . . . 4
- 2 Lateral line scales more than 23; second dorsal fin with a distal dark stripe . . . . .  
Helcogramma fuscopinna
- Lateral line scales less than 23; second dorsal fin translucent . . . . . 3
- 3 Sides of body with two series of small bluish white spots; mandibular pore formula  $3 + 2 + 3$  . . . . . Helcogramma maldivensis n. sp.
- Sides of body without stripes; mandibular pore formula  $2 - 3 + 1 + 2 - 3$  . . . . . Helcogramma larvata n. sp.
- 4 Caudal peduncle with a dorsal and a ventral black blotch; lower sides of head dark; anterior lateral line with more than 15 pored scales . . . . . Enneapterygius elegans
- Caudal peduncle without dark blotches; lower sides of head light; anterior lateral line with less than 12 pored scales . . . . . Enneapterygius obscurus.

### 4. Species descriptions

#### 4.1. *Enneapterygius elegans* (Peters, 1877) (Figs 1–2, Pl. 1)

*Tripterygium elegans* Peters, 1877: 441–442 (Mauritius).

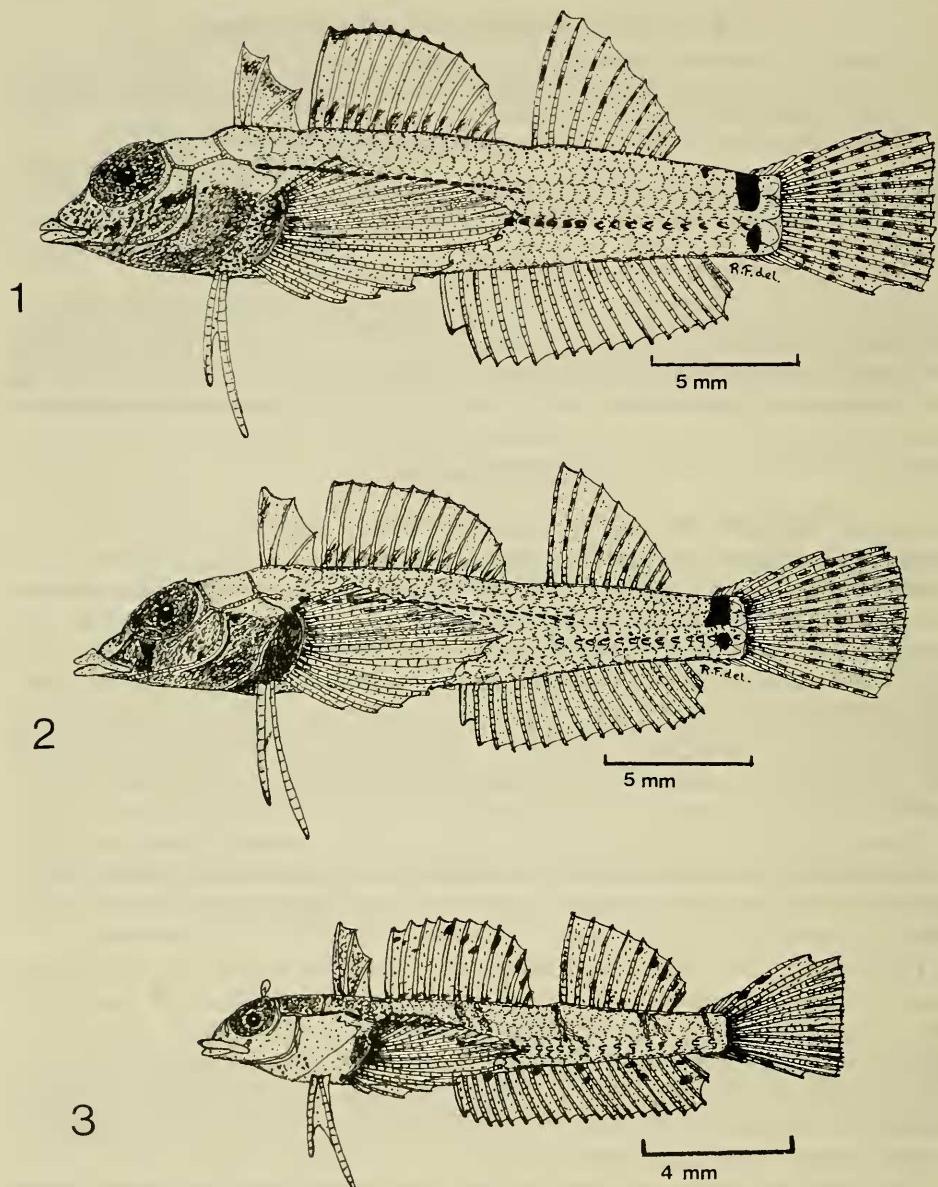
*Enneapterygius elegans*: HOLLEMAN, 1986: 756–757, fig., pl. 116 (Kenya to southern Mozambique and islands of Western Indian Ocean).

Material: 12 specimens. — BPBM 33024, 5 males (22.3. – 25.1 mm SL) and 3 females (18.3 – 24.6 mm SL), Maldives, North Male Atoll, Male Is., east end, ocean side of building of Marine Research Station, outer surge zone of reef, 1.0 – 1.5 m depth, J. E. RANDALL, R. C. ANDERSON & M. S. ADAM, 21 Mar. 1988. — BPBM 33091, 4 females (16.2 – 22.2 mm SL), Maldives, North Male Atoll, Male Is., ocean side, off sea wall, surge channel with boulders, 0 – 1.5 m depth, J. E. RANDALL, R. C. ANDERSON, M. S. ADAM & D. A. MILTON, 25 Mar. 1988.

Description:  $D_1$  III;  $D_2$  (XI–)XII;  $D_3$  viii, 1; A I, xv–xvii, 1 (total 17–19); P<sub>1</sub> 9, vii; P<sub>2</sub> I, ii; C (vi–viii), ii, 9, ii, (vi–vii). Scale rows 30 – 33 + 1. Transverse scale rows 9 – 10. Lateral line scales 17–19 + 14–16. Mandibular pore formula  $3 + 1 + 3$ .

Head length 271 – 307. Eye diameter 92 – 114. Orbital tentacle simple, short, about 6. Interorbital width 27 – 34. Preorbital length 59 – 75. Maxillary length 63 – 91. Occipital lateral-line branches simple. Occipital branch U-shaped, simple. Body depth 185 – 232. Body width 171 – 216. Anterior lateral line consisting of 17 – 19 pored scales, reaching to below 1st or 2nd membrane of third dorsal fin; posterior lateral line, two rows below, with 14 – 16 incised scales. Caudal peduncle length 109 – 145. Caudal peduncle depth 88 – 92.

First dorsal fin low in both sexes, the first spine shorter than first spine of second dorsal fin; first spine 115 – 126, second spine 102 – 110, third spine 75 – 85. Predorsal (1) length 238 – 272. First spine of second dorsal fin 128 – 165, 5th spine 117 – 153, last spine 30 – 33. Predorsal (2) length 347–359. First ray of third dorsal fin 167 – 194, 5th ray 103 – 117, last ray 34 – 40. Predorsal (3) length 666 – 697. Anal fin beginning on a vertical through 10th membrane of second dorsal fin (under 11th – 13th pore of anterior lateral line). Anal spine 59 – 91; 5th anal ray 100 – 157, penultimate ray 88 – 102, last ray 58 – 85. Preanal fin length 511 – 566. Pectoral fin reaching about to 3rd or 4th anal fin ray. Pectoral fin length 296 – 325. Prepectoral fin length 281 – 319. First ray of pelvic fin 134 – 185, 2nd ray 209 – 258. Prepelvic fin length 213 – 257. Caudal fin truncate; its length 191 – 240.



Figs. 1–2. *Enneapterygius elegans* (Peters, 1877); N Male Atoll, BPBM 33024. – 1. Lateral view of specimen 1, male, 25.1 mm SL; – 2. Lateral view of specimen 6, female, 22.7 mm SL.

Fig. 3. *Enneapterygius obscurus* Clark, 1980; S Male Atoll, SMNS 11518; lateral view of specimen 1, male, 14 mm SL.

Color in life: Body, pectoral and anal fins reddish brown, with about 9 darker vertical bars. Body color more intense in males. Lower three fourths of head black in males. Caudal peduncle with a black hourglass marking. Pelvic fins reddish, tips white. Dorsal and caudal fin rays mottled with reddish brown.

Color in alcohol: Head and body brown, lower sides of head dark gray, with a blackish spot below the eye. Head colouration slightly more intense in males than in females. Eye dark gray. Caudal peduncle with a dorsal and a ventral black blotch, the dorsal blotch larger. First dorsal fin dusky distally; second dorsal fin with dusky spots basally and a distal dark margin; third dorsal fin rays with dark spots distally. Caudal fin with 5 – 6 vertical rows of dark spots on the rays. Anal, pectoral and pelvic fins colorless.

Sexual dimorphism: Not much developed. Females have a slightly lighter head colouration.

Distribution: This is the first record of *Enneapterygius elegans* from the Central Indian Ocean. The species is otherwise distributed at islands in the Western Indian Ocean and along the East African coast from Kenya to Mozambique. In the Maldives, it was found in shallow water (0 – 1.5 m) at the outer reef edge.

Remarks: This species occurs in the same exposed inshore habitat in the Maldives as *Helcogramma larvata* n. sp..

#### 4.2. *Enneapterygius obscurus* Clark, 1980 (Fig. 3)

*Enneapterygius obscurus* Clark, 1980: 105 – 106, fig. 15 (N and S Red Sea). DOR, 1984: 234 (Red Sea).

Material: 1 specimen. – SMNS 11518, 1 male, 14.0 mm SL, Maldives, South Male Atoll, Kandooma-fushi Is., at SW outer reef, reef between Kandooma Island and northern channel, 3°55'38"N 74°29'33"E, isolated coral heads, under overhanging coral, 0.5 – 2.0 m depth, R. FRICKE, 13 Nov. 1988.

Description: D<sub>1</sub> III; D<sub>2</sub> XII; D<sub>3</sub> viii, 1; A I, xix, 1 (total 21); P<sub>1</sub> ii, 7, vi; P<sub>2</sub> I, ii; C (vii), ii, 9, ii, (vii). Scale rows 29. Transverse scale rows 8 (2+1+1+1+3). Lateral line scales 10 + 20. Mandibular pore formula 3 + 1 + 3.

Head length 282. Eye diameter 92. Orbital tentacle 37. Interorbital width 37. Preorbital length 39. Maxillary length 100. Occipital lateral line branches simple. Occipital branch I-shaped, simple. Body depth 168. Body width 125. Anterior lateral line consisting of 10 pores, reaching about to 6th D<sub>2</sub> membrane; posterior lateral line 2 rows lower, with 20 incised scales. Caudal peduncle length 119. Caudal peduncle depth 75.

First dorsal fin relatively high, the first spine longer than first spine of second dorsal fin; first spine 148, second spine 135, third spine 84. Predorsal (1) length 251. First spine of second dorsal fin 144, 5th spine 164, last spine 36. Predorsal (2) length 333. First ray of third dorsal fin 185, 5th ray 148, last ray 50. Predorsal (3) length 685. Anal fin beginning on a vertical through 6th spine of second dorsal fin (under 10th lateral line pore). Anal spine 75; 5th anal ray 103, penultimate ray 114, last ray 61. Preanal fin length 474. Pectoral fin reaching about to 7th anal fin membrane. Pectoral fin length 292. Prepectoral fin length 312. First ray of pelvic fin 153, 2nd ray 238. Prepelvic fin length 203. Caudal fin truncate; its length 224.

Color in alcohol: Head and body brown, occiput dark brown, eye dark gray. Sides of body dorsally with 5 bars, the 2nd and 4th double. First dorsal fin dark gray; second and third dorsal fins distally with dark spots. Anal fin base with 5 dark spots,

the last three double. Caudal fin with two dorsal and two ventral dark spots near its base.

Sexual dimorphism: Unknown.

Distribution: Previously known only from the Red Sea. The Maldives specimen represents the first record of the species from the Indian Ocean.

Remarks: This Maldives fish differs slightly from the Red Sea material described by CLARK (1980) in anal and caudal fin color markings; it agrees well otherwise, including morphometric characters, and is therefore identified as *Enneapterygius obscurus*.

The species was collected in the same habitat at South Male Atoll as *Helcogramma maldivensis* n. sp.

#### 4.3. *Helcogramma fuscopinna* Holleman, 1982 (Fig. 4, Pl. 1)

*Helcogramma fuscopinna* Holleman, 1982: 115–120, fig. 4 (Indo-West Pacific). HANSEN, 1986: 337–339 (Indo-West Pacific). HOLLEMAN, 1986: 757, fig. 236. 7 (South Africa).

Material: 1 specimen. – BPBM 33025, 1 male, 29.7 mm SL, Maldives, North Male Atoll, Male Is., east end, ocean side off Marine Research Station, outer surge zone of reef, 1.0–1.5 m depth, J. E. RANDALL, R. C. ANDERSON & M. S. ADAM, 21 Mar. 1988.

Description: D<sub>1</sub> III; D<sub>2</sub> XIV; D<sub>3</sub> x, 1; A I, xix, 1 (total 21); P<sub>1</sub> iii, 7, vii; P<sub>2</sub> I, ii; C (vii), ii, 9, ii, (vii). Scale rows 39–40. Transverse scale rows 14 (7+1+6). Lateral line scales 24–27. Mandibular pore formula 5 + 1 + 5.

Head length 287. Eye diameter 105. Orbital tentacle very small. Interorbital width 33. Preorbital length 58. Maxillary length 139. Occipital lateral line branches simple. Body depth 220. Body width 180. Lateral line consisting of 24–27 pores, reaching about to 6th ray of D<sub>3</sub>. A scaleless strip below bases of first and second dorsal fin. Another scaleless strip ventrally along beginning of anal fin base. Caudal peduncle length 114. Caudal peduncle depth 68.

First dorsal fin low, lower than second dorsal fin; first spine 88, second spine 86, third spine 84. Predorsal (1) length 233. First spine of second dorsal fin 135, 5th spine 159, last spine 58. Predorsal (2) length 331. First ray of third dorsal fin 168, last ray 34. Predorsal (3) length 703. Anal fin beginning on a vertical through 8th membrane of second dorsal fin (under 11th lateral line pore). Anal spine 61; 5th anal ray 101, penultimate ray 82, last ray 38. Preanal fin length 493. Pectoral fin reaching about to 5th anal fin membrane. Pectoral fin length 277. Prepectoral fin length 307. First ray of pelvic fin 131, 2nd ray 193. Prepelvic fin length 209. Caudal fin truncate; its length 194.

Color in alcohol: Brown, eye dark gray. Back darker brown, sides of body with a few dark blotches. Sides of head with dark spots. First and third dorsal fins translucent, second dorsal fin with a distal dark streak. Anal fin translucent. Caudal fin with a basal and a median dark bar. Pectoral and pelvic fins translucent.

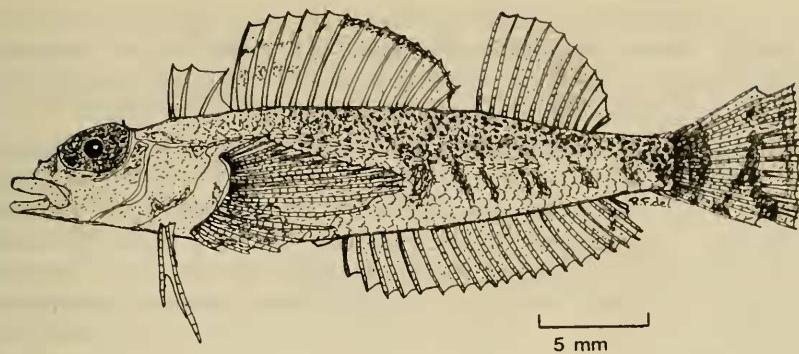
Distribution: Indo-West Pacific, from South Africa and South Arabia to Taiwan and New Guinea. This is the first record of the species from the Maldives.

#### 4.4. *Helcogramma larvata* n. sp. (Figs. 5–6)

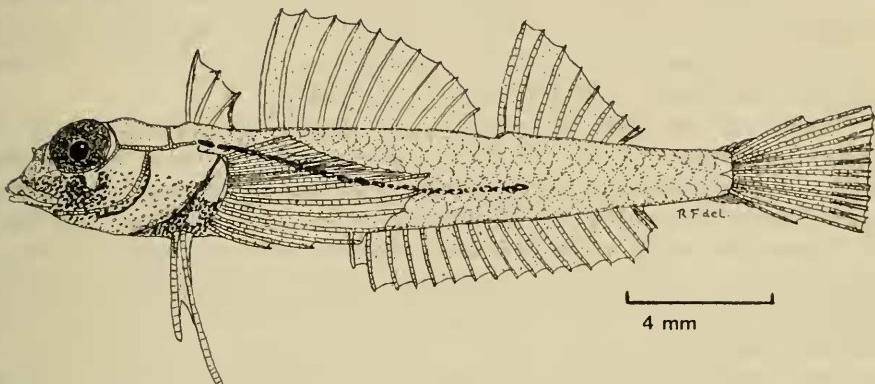
Material: 4 specimens.

Holotype: BPBM 34518, male, 19.8 mm SL, Maldives, N Male Atoll, Male Is., east end, ocean side of building of Marine Research Station, surge zone of reef, 1.0–1.5 m depth, J. E. RANDALL, R. C. ANDERSON & M. S. ADAM, 21 Mar. 1988.

4



5



6

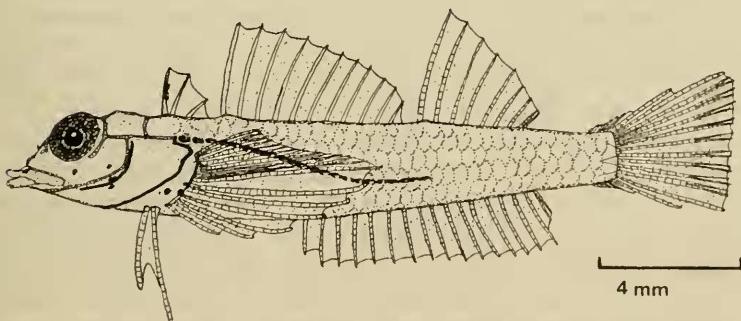


Fig. 4. *Helcogramma fuscopinna* Holleman, 1982; N Male Atoll, BPBM 33025; lateral view of a male, 29.7 mm SL.

Figs. 5–6. *Helcogramma larvata* n. sp.; N Male Atoll. — 5. Lateral view of male, BPBM 34518, holotype, 19.8 mm SL; — 6. Lateral view of specimen 2, female, BPBM 34520, paratype, 16.4 mm SL.

Paratypes: BPBM 34519, 1 male, 19.1 mm SL, with the same data as the holotype. — BPBM 34520, 1 female, 16.4 mm SL, Maldives, N Male Atoll, Male Is., ocean side, off sea wall, surge channel with boulders, 0 — 1.5 m depth, J. E. RANDALL, R. C ANDERSON, M. S. ADAM & D. A. MILTON, 25 Mar. 1988. — SMNS 11577, 1 male, 19.2 mm SL, with the same data as BPBM 34520.

**Etymology:** The species name „*larvata*“ (from *larvatus*, Latin) meaning „bearing a mask“.

**Diagnosis:** A *Helcogramma* with 11 — 12 spines in the second dorsal fin, 8 — 9 rays in the third dorsal fin, 16 — 18 anal fin rays, 15 pectoral fin rays, no orbital tentacle, 20 — 22 lateral line scales, 32 — 35 total lateral scale rows, 2—3 + 1 + 2—3 mandibular pores, and hardly any head and body coloration except a dark lower side of the head in males, with a light blotch under the eye and two light blotches on the pectoral fin base.

**Description:**  $D_1$  III;  $D_2$  XI (XI—XII);  $D_3$  vii, 1 (vii, 1 — viii, 1); A I, xv, 1 (I, xiv—xvi, 1) (total 16 — 18);  $P_1$  8, vii;  $P_2$  I, ii; C (v), ii, 9, ii, (v) [(v—viii), ii, 9, ii, (v—vii)]. Scale rows 33 — 34 (32 — 35). Lateral line scales 21 — 22 (20 — 22). Mandibular pore formula 2 + 1 + 2 (2—3 + 1 + 2—3).

Head length 291 (280—303). Eye diameter 86 (80—93). Orbital tentacle absent. Interorbital distance 34 (19—37). Preorbital length 59 (46—54). Maxillary length 85 (88—113). Occipital lateral line branches simple. Occipital branch I-shaped, simple. Body depth 141 (168—204). Body width 166 (137—175). Lateral line consisting of 20 — 22 pores, reaching to below second or third ray of third dorsal fin. A scaleless strip below bases of first and second dorsal fin. Another scaleless strip ventrally along beginning of anal fine base. Caudal peduncle length 148 (141—167). Caudal peduncle depth 65 (71—85).

First dorsal fin low in both sexes; first spine in the male 102 (97—116), in the female 84; second spine 74 (63—78); third spine 65 (42—68). Predorsal (1) length 240 (195—242). First spine of second dorsal fin 174 (162), 5th spine 124 (140), last spine 48 (37). Predorsal (2) length 378 (296—331). First ray of third dorsal fin 164 (191—208), 5th ray 83 (82), last ray 37 (40). Predorsal (3) length 676 (629—680). Anal fin beginning on a vertical through 6th to 7th spine of second dorsal fin (under 12th to 13th lateral line pore). Anal spine 48 (55); 5th anal ray 75(86), last but one ray 71 (83), last ray 33 (37). Preanal fin length 469 (476—491). Pectoral fin reaching about to 5th anal fine membrane. Pectoral fin length 285 (306—318). Prepectoral fin length 288 (270—321). First ray of pelvic fin 152 (141—142), 2nd ray 224 (201—204). Prepelvic fin length 224 (190—226). Caudal fin truncate; its length 196 (184—214).

**Color in alcohol:** Head and body pale, lower sides of head in the male dark, with a light blotch below the eye and two light blotches on the pectoral fin base; female with a few dark spots on lower sides of head. Fins pale, except distal margin of the third  $D_1$  membrane in the male dusky.

**Sexual dimorphism:** Males have a slightly higher first dorsal fin, and a different color pattern of the lower sides of the head.

**Distribution:** *Helcogramma larvata* n. sp. is known from only four specimens taken at North Male Atoll, Maldives Islands; it was found in shallow water (0 — 1.5 m depth) at the outer reef edge.

**Relationships:** This new species differs from most species of *Helcogramma* in the low number of second dorsal fin spines (XI, rarely XII) and the low number of third dorsal fin rays (vii, 1, rarely viii, 1). Within the species of *Helcogramma* without an orbital tentacle, it differs from *Helogramma capidata* Rosenblatt in Schultz,

1960 from the Central Pacific by the number of mandibular pores ( $5-10+1+5-10$  in *H. capidata*), lower number of spine/ray elements in the second and third dorsal fins, and a different colouration of the pectoral fin base (completely dark in *H. capidata*); it is distinguished from *H. chica* Rosenblatt in Schultz, 1960 from the Central and Western Pacific in fewer spine elements in the second dorsal in (XIII–XV in *H. chica*), fewer anal fin rays total 19–21 in *H. chica*), and a different pectoral fin in colouration (with a dark triangle in *H. chica*).

*Helcogramma ellioti* (Herre, 1944) from India to the West and Central Pacific, *Helcogramma fuscopinna* Holleman, 1982 from the Western Indian Ocean, *Helcogramma obtusirostre* (Klunzinger, 1871) from the Indian Ocean, and *Helcogramma steinitzi* Clark, 1980 from the Red Sea differ from the new species in the presence of an orbital tentacle, by higher counts of the second dorsal, third dorsal and anal fins, and by a different head colouration of the males.

Remarks: This species co-occurs in the Maldives with *Enneapterygius elegans*.

#### 4.5. *Helcogramma maldivensis* n. sp. (Figs. 7–8, Pl. 1)

*Helcogramma striata* (part: Maldives materials only) Hansen, 1986: 351.

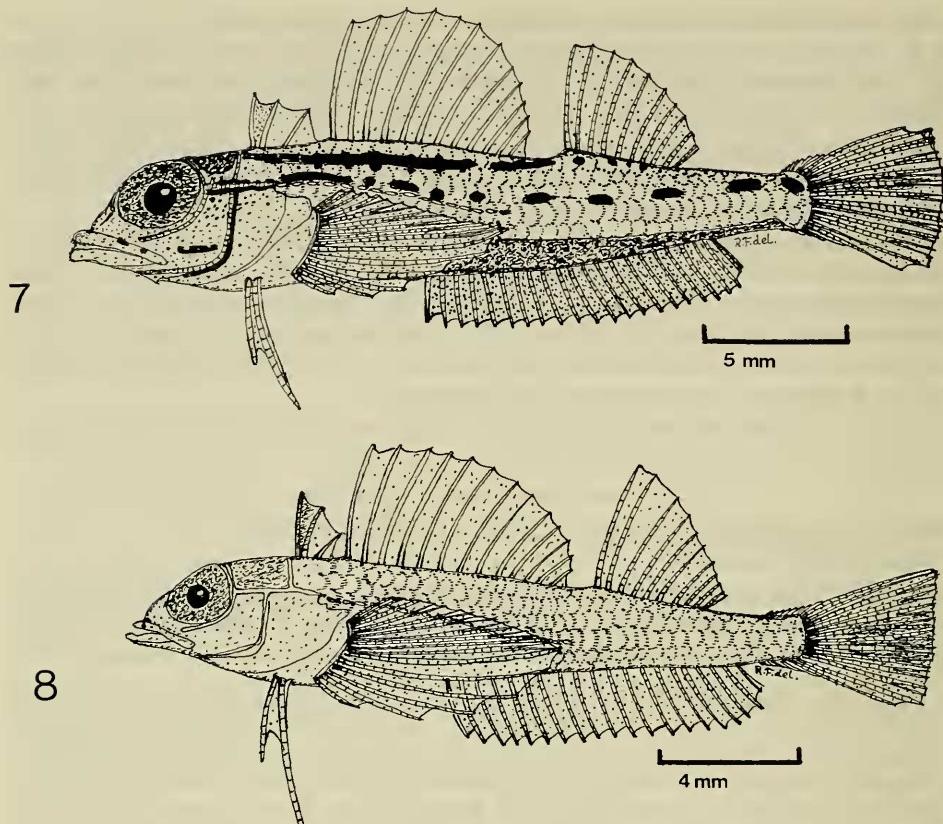
Material: 23 specimens.

Holotype: SMNS 11468, male, 25.4 mm SL, Maldives, South Male Atoll, Kandooma Is., SW outer reef, reef between Kandooma Is. and northern channel,  $3^{\circ}55'38''N$   $74^{\circ}29'33''E$ , high tide, 0.5 – 1.5 m depth, isolated coral heads, under overhanging corals, R. FRICKE, 12 Nov. 1988.

Paratypes: BPBM 18889, 2 males (19.4 – 25.3 mm SL), Maldives, North Male Atoll, Villingili Is., lagoon reef flat near outer edge, under large rock, 1 m depth, J. E. RANDALL, 19 Mar. 1975. – BPBM 32904, 3 males (20.3 – 24.9 mm SL), Maldives, North Male Atoll, Villingili Is., off dock, 2 – 3 m depth, J. E. RANDALL, 15 Mar. 1988. – BPBM 32976, 1 male (27.6 mm SL), Maldives, North Male Atoll, Embudu Is., south side, lagoon reef, 8 – 10 m depth, J. E. RANDALL et alii, 18 Mar. 1988. – CAS 75979, 1 male, 21.6 mm SL, with the same data as BPBM 32976. – RUSI 36705, 1 male, 20.3 mm SL, with the same data as BPBM 32976. – USNM 316488, 1 male, 24.9 mm SL, with the same data as BPBM 32976. – BPBM 34521, 1 female, 21.4 mm SL, Maldives, North Male Atoll, Male Is., east end, ocean side off building of Marine Research Station, outer surge zone of reef, 1.0 – 1.5 m depth, J. E. RANDALL, R. C. ANDERSON & M. S. ADAM, 21 Mar. 1988. – SMNS 11469, 2 males (17.5 – 22.3 mm SL) and 2 females (15.1 – 18.8 mm SL), with the same data as the holotype. – SMNS 11470, 2 males (17.6 – 21.6 mm SL) and 1 female (18.9 mm SL), same locality as the holotype, high tide, 0.5 – 2.0 m depth, R. FRICKE, 13 Nov. 1988. – NSMT-P 34632, 1 male, 17.6 mm SL, with the same data as SMNS 11470. – ZMB 32033, 1 male, 17.0 mm SL, with the same data as SMNS 11470. – SMNS 11471, 1 male, 17.8 mm SL, same locality as the holotype, low tide, 1.2 m depth, R. FRICKE, 14 Nov. 1988. – SMNS 11472, 1 male, 22.2 mm SL, Maldives, South Male Atoll, Biyadoo Is., reef at S canal,  $3^{\circ}56'N$   $74^{\circ}29'30''E$ , under overhanging coral, 0.8 – 1.2 m depth, R. FRICKE, 17 Nov. 1988. – SMNS 11473, 1 male (23.3 mm SL), same locality as the holotype, high tide, 0.5 – 1.5 m depth, R. FRICKE, 18 Nov. 1988. – BM(NH) 1991.4.15:1, 1 male, 17.5 mm SL, with the same data as SMNS 11473. – MNHN 1991-0700, 1 male, 21.7 mm SL, with the same data as SMNS 11473.

Etymology: The species name „maldivensis“ refers to the type locality, the Maldives, where the species appears to be endemic.

Diagnosis: A *Helcogramma* with 12 – 14 (mean 12.9) spines in the second dorsal fin, 9 – 11 rays in the third dorsal fin (mean 10.1), 18 – 22 anal fin rays, 14 – 17 pectoral fin rays, no orbital tentacle, 13 – 21 lateral line scales, 34 – 39 total lateral scale rows, 3 + 2 + 3 mandibular pores, and males with two or three lines of bluish white along the sides of the body, consisting of spots posteriorly, united to a confluent line anteriorly; females light brown, nearly without body markings.



Figs. 7–8. *Helcogramma maldivensis* n. sp.; S Male Atoll. — 7. Lateral view of male, SMNS 11468, holotype, 25.4 mm SL. — 8. Lateral view of specimen 4, female, SMNS 11469, 18.8 mm SL.

**Description:** D<sub>1</sub> III; D<sub>2</sub> XII (XII–XIV) (mean 12.9); D<sub>3</sub> ix, 1 (viii–x, 1) (mean 10.1); A I, xx, 1 (I, xvi–xx, 1) [total 22 (18–22)]; P<sub>1</sub> iii, 6, vi (iii, 5–8, vi) [total 15 (14–17)]; P<sub>2</sub>, I, ii; C (vii–x), ii, 9, ii, (vi–ix). Scale rows 36–37 (34–39). Transverse scale rows 5+1+6 (4–5+1+5–6) [total 12 (10–12)]. Lateral line scales 16–17 (13–21). Mandibular pore formula 3 + 2 + 3.

Head length 317 (268–330). Eye diameter 118 (88–132). Orbital tentacle absent. Interorbital distance 41 (15–32). Preorbital length 46 (33–59). Maxillary length 131 (93–126). Occipital lateral line branches simple. Posttemporal branch U-shaped, simple. Body depth 185 (142–174). Body width 109 (106–144). Lateral line consisting of 13–21 pores, usually reaching to below end of second dorsal fin or to space between second and third dorsal fins. A narrow scaleless strip below beginning of base of first dorsal fin. Another scaleless strip ventrally along beginning of anal fin base. Caudal peduncle length 157 (139–175). Caudal peduncle depth 64 (65–86).

First dorsal fin low in both sexes; first spine 80 (62–98), second spine 75 (52–80), third spine 62 (37–71). Predorsal (1) length 240 (226–266). First spine of second dorsal fin 170 (137–208), 5th spine 191 (149–215), last spine 41 (38–58).

Predorsal (2) length 350 (297 – 365). First ray of third dorsal fin 157 (130 – 205), 5th ray 128 (100 – 138), last ray 32 (16 – 48). Predorsal (3) length 676 (652 – 772). Anal fin beginning on a vertical through 7th membrane of second dorsal fin (under 10th lateral line pore). Anal spine 58 (47 – 94); 5th anal ray 75 (77 – 108), penultimate ray 83 (71 – 110), last ray 51 (46 – 67). Preanal fin length 474 (458 – 563). Pectoral fin reaching about to 6th–7th anal fin membrane. Pectoral fin length 265 (234–320). Prepectoral fin length 318 (265 – 316). First ray of pelvic fin 120 (103–169), 2nd ray 187 (173 – 226). Prepelvic fin length 231 (186 – 264). Caudal fin truncate or slightly convex, its length 186 (192 – 222).

**Color in life (male):** Head and body reddish brown, lower one-third of body light gray, eye dark gray, jaws and lips orange-red. Sides of body with two or three lines of bluish white spots, which join to form stripes in anterior part of body (starting below first dorsal fin). Dorsal and anal fins rose carmine red, caudal fin carmine red, pectoral and pelvic fins white.

**Color in life (female):** Generally lighter than the male, light brown above, white below, with a few orange brown spots; occiput orange brown; eye dark gray. No bluish stripes or spots on sides of body. Fins translucent.

**Color in alcohol:** The jaws, lips and fins of the male fade to whitish, the bluish white lines on the body change to dark gray.

**Sexual dimorphism:** Males and females mostly agree in proportions, but have a different color pattern as described above.

**Distribution:** Maldives only. This species was collected only at the North and South Male Atolls, but it probably occurs elsewhere in the Maldives. It was collected at depths of 0.5 – 10 m. *Helcogramma maldivensis* n. sp. appears to be the most common tripterygiid in the Maldives Islands. It was clearly the species most often observed by us.

**Relationships:** *Helcogramma maldivensis* n. sp. is closely related to *H. striata* Hansen, 1986. It shares most morphological and color characteristics of this species, scale counts, and fin ray counts except those of the second and third dorsal fins. It is distinguished by the different color pattern of the male (*H. striata* with 3 continuous streaks along the sides of the body), the different head color pattern (the streaks continue across the head to the premaxillary in *H. striata*, but end behind the operculum in *H. maldivensis*), the presence of sexual dichromatism (lacking in *H. striata*, where females have the same color pattern as males), the caudal peduncle length (124 – 150 in *H. striata*), and the caudal fin length (169 – 187 in *H. striata*). *Helcogramma maldivensis* also differs from *H. striata* in the mean number of second dorsal rays (usually XIII in *H. maldivensis*, mean 12.9; usually XIV in *H. striata*, mean 14.1) and third dorsal rays (usually ix, 1 in *H. maldivensis*, mean 10.1; usually x, 1 in *H. striata*, mean 11.0).

**Remarks:** *Helcogramma maldivensis* n. sp. was found together with *Enneapterygius obscurus* at Kandooma Is., South Male Atoll.

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Authors' addresses:

Dr. RONALD FRICKE, Staatliches Museum für Naturkunde (Museum Schloss Rosenstein), Rosenstein 1, D-7000 Stuttgart 1, Federal Republic of Germany, and  
Dr. JOHN E. RANDALL, Bernice P. Bishop Museum, P. O. Box 19000-A, Honolulu, Hawaii 96817-0916, U.S.A.

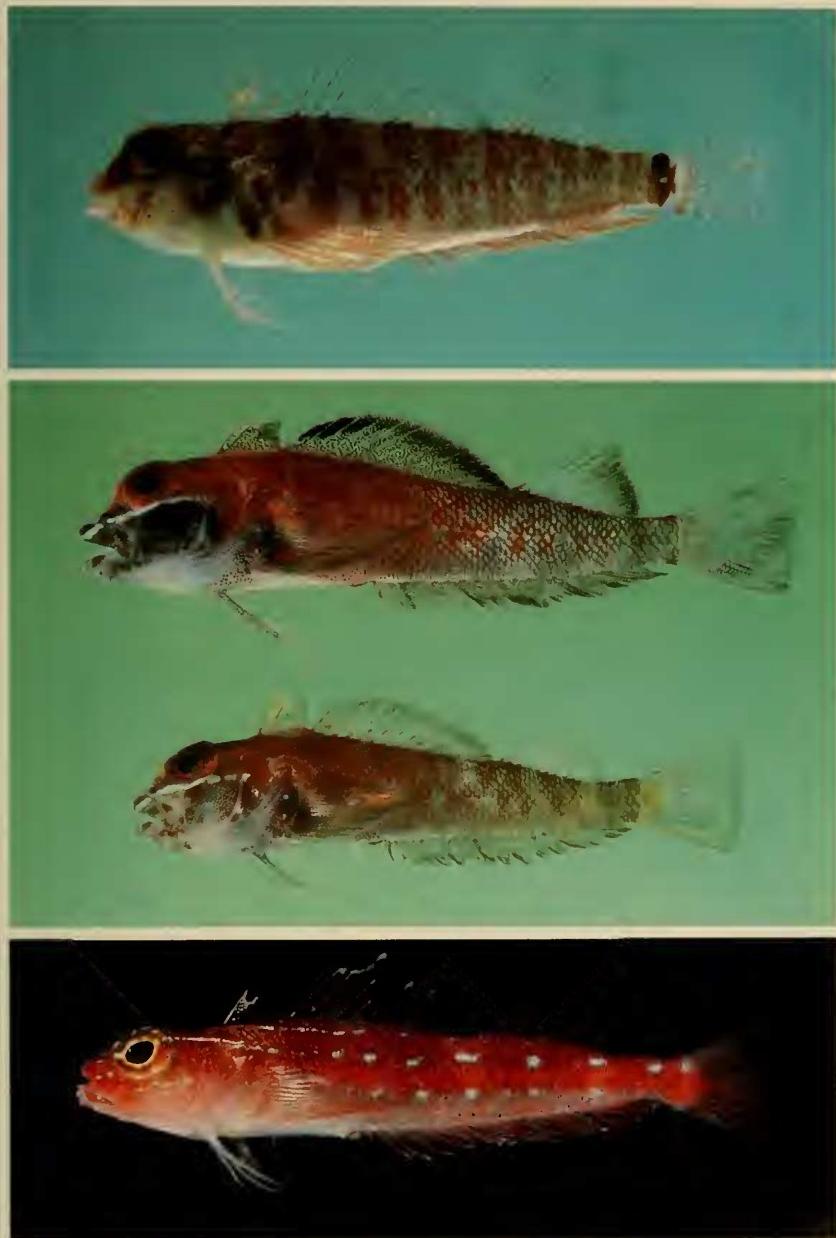


Plate 1.

Upper: *Enneapterygius elegans*; Maldives Islands, BPBM 33091; female, 22.2 mm SL. — Middle: *Helcogramma fuscopinna*; Natal, South Africa, RUSI 7744; above: male, 41 mm SL; below: female, 35 mm SL. — Lower: *Helcogramma maldivensis* n. sp.; Maldives Islands, BPBM 32976; male, 27.6 mm SL.